

# *Quarterly Divisional Review*

**01 Jul 2008**

**3QFY08**

**Dr. William F. Denig, Chief  
Solar & Terrestrial Physics Division**

**NOAA/NESDIS/NGDC**

**303 497-6323**

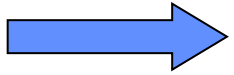
**[William.Denig@noaa.gov](mailto:William.Denig@noaa.gov)**





# OUTLINE

## Solar & Terrestrial Physics Division



### **STP Program Overview**

### **Milestones & Performance Measures**

### **Upcoming Events**

### **Accomplishments**

### **Special Interest Items**

### **Solar Data Services Website**

### **Issues & Summary**



# STP Program Overview

## Personnel



### Solar & Terrestrial Physics Division

William Denig/F, Chief

Janet Brown/F, Secretary

Karen Horan/F, Physical Science Tech

Craig Clark/F, Scientific Data Tech

#### Space Environment Group (SEG)

##### Eric Kihn/F, Team Lead

- Terry Bullett/C
- Ray Conkright/C
- Ed Erwin/F
- Justin Mabie/C
- Rob Redmon/F
- Herb Sauer/C
- Dan Wilkinson/F
- Jim Manley/C
- Erin Rowland/S
- Dave Fischman/F
- Sara Mohan/S
- Ethan Peck/S

#### Earth Observation Group (EOG)

##### Chris Elvidge/F, Team Lead

- Kim Baugh/C
- Ben Tuttle/C
- Tilottama Ghosh/C
- David Ziskin/C

#### Earth Geophysics Group (EGG)

##### Vacant/F, Team Lead

- Patrick Alken/C
- Rob Prentice/C
- Don Herzog/C
- Fran Coloma/C
- Dave Fischman/F
- Andrea Bilich/F, NGS

#### Key

F – Federal  
C – CIRES/CIRA  
S – Student



# STP Program Overview

## Personnel Changes



- **Gains**

- Sara Mohon (SEG) – Hollings Scholar – College of William & Mary
- Ethan Peck (SEG) – Hollings Scholar – Cornell University
- ISET - Mohamed Gebril (SEG) - North Carolina A&T State University
- EOG Scientific Programmer – Daniel Ziskin

- **Losses**

- Andrew Kimbrel – Status unknown

- **Vacancies**

- SEG Space Physicist – Currently on hold; CIRES PRA
- STP Real-time Data Manager – Currently on hold; CIRES PRA

- **Inbound**

- EOG Visiting Researcher – Christoph Aubrecht (Arrival: 14 July)

- **Pending**

- Don Herzog – Departing CIRES – Summer '08
- NGS CORS Technician – Pending – NGS action (FY08 or later)

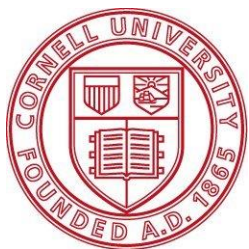


# STP Program Overview

## Ernest F. Hollings Undergraduate Scholars



**Background** – This summer NGDC is sponsoring 3 Hollings scholars engaged in various research programs. Mr Ethan Peck (Cornell University) is developing a new auroral probability product for the NWS Space Weather Prediction Center. Ms Sara Mohan (College of William and Mary) is investigating high-latitude ion outflows on magnetic field lines connected to the distant magnetosphere. Mr Chris Amante (College of the Holy Cross) is developing global Digital Elevation Maps (DEMs) with an emphasis on ocean circulation boundaries. Each of the Hollings scholars works closely with an assigned NGDC mentor.



**Significance** – The Hollings program provides an excellent training opportunity for young scientists





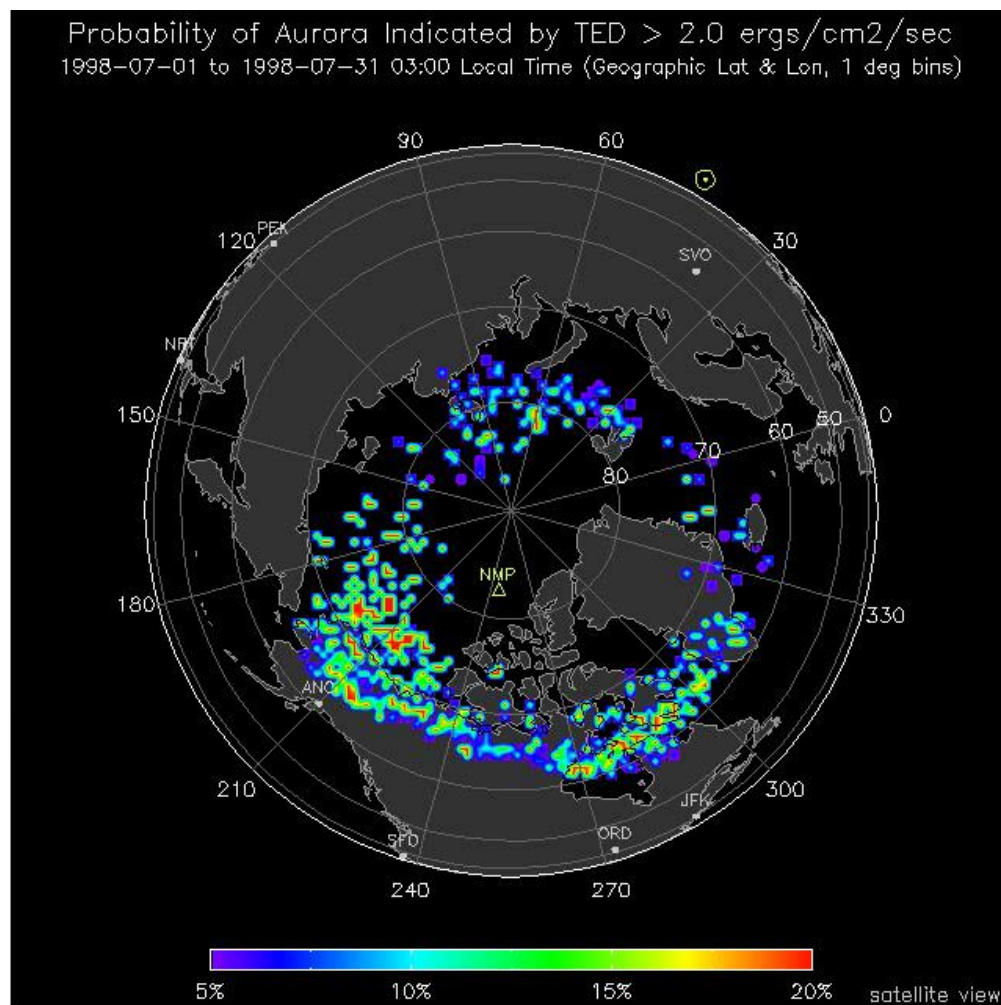
# STP Program Overview

## Ernest F. Hollings Research Project



This animation depicts 10 years of precipitating charged particle measurements from Polar Orbiting Environmental Satellite (POES) spacecraft. Data are presented in a constant magnetic latitude and magnetic local time coordinate frame (sun is symbolically shown in the upper right). **Scholar Ethan Peck** and mentor Dan Wilkinson are working with Sue Green (SWPC) to develop an auroral probability tools for the U.S.A.

**Scholar Sarah Mohan** is working with Rob Redmon on a related project on auroral ion outflows that was presented at the recent CEDAR workshop .



OFFICE OF EDUCATION

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION





# STP Program Overview

## NOAA ISET Summer Student



**Background – Mohamed Gebril is spending the summer at NGDC working under the NOAA Interdisciplinary Scientific Environmental Technology (ISET) program. Mr Gebril is a computer science graduate student at the North Carolina Agricultural & Technical State University. He will contribute to various environmental data mining initiatives within NGDC under the guidance of Dr Eric Kihn.**

**Significance – Effort supports NOAA educational outreach**







# STP Program Overview

## New CIRES PRA – Daniel Ziskin



Dr Daniel Ziskin recently joined STP's Earth Observation Group (EOG) as a scientific programmer. Daniel comes to NGDC with considerable experience in handling large databases. Previously he was a co-Investigator and Data Manager within the National Center for Atmospheric Research (NCAR) and worked within the Distributed Active Archive Center (DAAC) at the NASA Goddard Space Flight Center. Dr Ziskin earned his Ph.D. at The Johns Hopkins University. At NGDC he will be contributing to the Defense Meteorological Satellite Program (DMSP) nighttime lights Near Real-Time (NRT) services and for reprocessing DMSP imagery within the NGDC archives.







# STP Program Overview

## Agreements – Status



### STATUS

Scope	Team	Type	Partner	NOAA Legal	DOC Legal	NGDC Signed	Partner Signed	Start	End	Status	
DMSP Archive	SEG	MOA	DMSP	X	X	X	X	30-Mar-07	30-Sep-09	G	In place - nothing to report
SWx Climatology	SEG	MOU	AFCCC	X	X	X	X	27-May-04	01-Oct-14	G	In place - nothing to report
Ionospheric Data	SEG	MOU	AFWA	X	X	X	X	21-Aug-06	21-Aug-11	G	In place - nothing to report
Ionosonde Sites	SEG	MOU	USGS					TBD	TBD	Y	Stalled at legal
Ionosonde Deploy	SEG	MOU	USAFA					TBD	TBD	Y	Pending AFWA funding
NASIC	EOG	MOU	NASIC	X	X	X	X	09-Mar-06	01-Jan-11	G	In place - nothing to report
CORS Support	EGG	AGR	NGS	n/a	n/a	X	X	01-Oct-03	30-Sep-08	G	In place - nothing to report



# STP Program Overview

## CDMP – Status



Dataset	Funded in FY08	POC	Contractor (\$K)	NGDC (\$K)	% Expended
Heat capacity mapping mission (L44)	X	Elvidge	60.0	6.0	0.0%
DMSP film scanning (L3)	X	Elvidge	825.0	82.5	54.2%
DMSP P/L activation messages (L41)	X	Elvidge	30.0	3.0	0.0%
Historical solar spectral data (L16)	X	Denig	65.0	6.5	8.1%
Cosmic rays - Forbush archives (L42)	X	Denig	85.0	8.5	0.0%
Historical solar observations (L18)	X	Denig	90.0	9.0	37.1%
Historical ionosonde records (L7)	X	Redmon	75.0	7.5	0.0%

123.0

Notes: As of 31 May 08

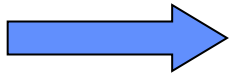


# OUTLINE

## Solar & Terrestrial Physics Division



### **STP Program Overview**



### **Milestones & Performance Measures**

### **Upcoming Events**

### **Accomplishments**

### **Special Interest Items**

### **Solar Data Services Website**

### **Issues & Summary**





# Milestones & Performance Measures

## FY08 Milestones – Status



PPBES Program	STP FY08 Milestones	Status	Planned Completion Date	Actual Completion Date	Responsible Person
AOP → Space Weather	Integrate Mirrion real-time ionospheric data access system with the Space Physics Interactive Data Resource (SPIDR) - <i>Deferred FY07 Milestone</i>	C	(Q1) 12/31/2007	(Q1) 12/1/2007	Redmon
Marine Transportation Systems	Improve crustal magnetic field model from degree 100 to degree 120 by minimizing the impact of spurious magnetic anomalies in satellite magnetic datasets.	C	(Q1) 12/30/2007	(Q1) 12/20/2007	Maus
Marine Transportation Systems	Produce radiance-calibrated, cloud-free, nighttime-lights composites for 2005-2006 using Defense Meteorological Satellite Program (DMSP) earth-imagery data.	C	(Q1) 12/31/2007	(Q1) 12/20/2007	Elvidge
Space Weather	Achieve Initial Operating Capability for the Space Environmental Integration System (SEIS) at the USAF Combat Climatology Center for use in battlespace M&S scenarios.	C	(Q2) 3/31/2008	(Q2) 3/31/2008	Kihn
Space Weather	Develop Application Programming Interface (API) extensions for ordering datasets via the Comprehensive Large-data Array Steward System (CLASS).	C	(Q3) 6/30/2008	(Q3) 5/14/2008	Kihn
Marine Transportation Systems	Implement an improved cloud-detection algorithm in real-time/static nighttime lights imagery products using 0.5-degree spatial resolution surface temperature grids.	G	(Q4) 9/30/2008		Elvidge
Marine Transportation Systems	Create station-level metadata records for 80% of all operating magnetic observatories providing data to NGDC in compliance with FGDC and emerging ISO standards.	G	(Q4) 9/30/2008		Herzog / Fischman
AOP → Space Weather	Complete 15-year environmental climatology for the coupled Ionosphere-Thermosphere-Magnetosphere (ITM) system using the Space Weather Analysis (SWA) framework.	G	(Q4) 9/30/2008		Mabie
AOP → Space Weather	Release internet-enabled tools to allow station operators to enter magnetic observatory station-level metadata through the Space Physics Interactive Data Resource (SPIDR).	G	(Q4) 9/30/2008		Kihn
AOP → Space Werather	Incorporate MetOp Space Environmental Monitor (SEM) data into NGDC space weather archives and provide scientific datasterwaship of the SEM data.	G	(Q4) 9/30/2008		Wilkinson
AOP → Marine Transportation Systems	Release version 2 of the degree-720 NGDC geomagnetic field model using a main magnetic field model plus contributions from the lithosphere and magnetosphere.	G	(Q4) 9/30/2008	Split with MGG	Maus

AOP → AOP milestone

**C** Complete  
**G** On-track

**Y** Watch Item  
**R** Issue



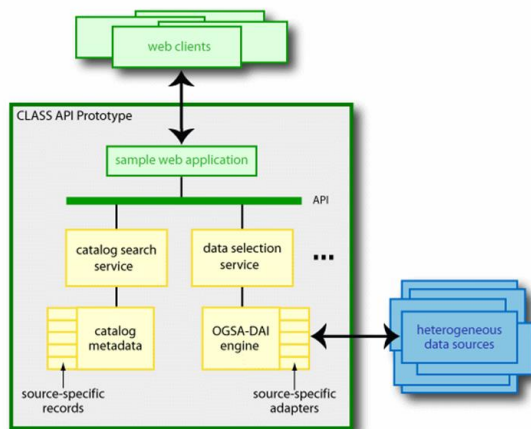
# New Capabilities for CLASS

## Simple NOAA Archive Access Portal



**Background** - The Simple NOAA Archive Access Portal (SNAAP) is an Application Programming Interface (API) that facilitates user access to NOAA environmental datasets included in CLASS. SNAAP provides a capability to integrate diverse data systems via a standards-based interface while maintaining a clear functional separation between data archive and access tasks. Enhancements to SNAAP demonstrated at the recent CLASS Developers' Workshop include a capability for asynchronous data ordering services that are well suited for CLASS.

**Significance** – Improved CLASS access is consistent with GEO/GEOSS objectives.



The screenshot shows the CLASS User Basket interface. The top navigation bar includes links for NOAA, NESDIS, NGDC, STP, and CLASS. The main content area displays a table of data elements in the User Basket. A red arrow points to the 'processing' column, indicating that elements are monitored via polling. Another red arrow points to the 'Asynchronous ordering accomplished via user basket' text at the bottom.

Type	Source	Param	Dates	Created	Location	File	processing	Remove
<input type="checkbox"/>	granule	dmsp_images	F17200804120352.3	2008-04-12T04:17:52.0UTC	2008-05-15T17:14:13UTC	67.6092 32.3437	processing REFRESH	Remove
<input type="checkbox"/>	granule	dmsp_images	F15200804111205.4	2008-04-11T12:43:30.0UTC	2008-05-15T17:29:45UTC	25.7999 -86.4844	not ready ORDER	Remove

Order elements monitored via polling

Asynchronous ordering accomplished via user basket



# Milestones & Performance Measures

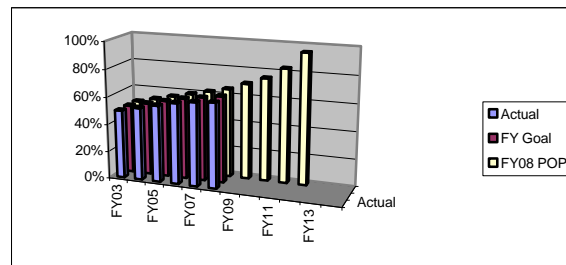
## Performance Measures - Status



### Performance Measures

#### 1 - Percentage of archived SWx data available to the public on-line

	Actual	FY Goal	FY08 POP
FY03	50%	50%	<b>50%</b>
FY04	53%	53%	53%
FY05	56%	56%	56%
FY06	59%	59%	59%
FY07	61%	61%	62%
FY08	62%	63%	<b>65%</b>
FY09			70%
FY10			75%
FY11			83%
FY12			<b>95%</b>
FY13			
FY14			

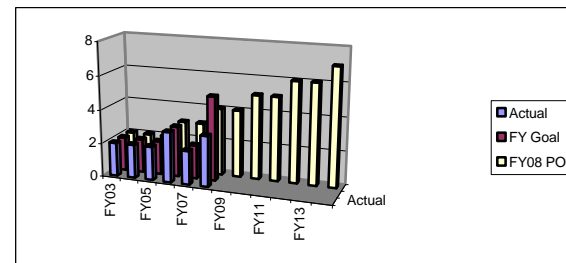


Current Month: Jun 08

This Q	Actual	FY08
Planned	This Q/Total	Target
62	62%/63%	63%

#### 2 - Improved retrospective products for understanding the space environment

	Actual	FY Goal	FY08 POP
FY03	2	2	<b>2</b>
FY04	2	2	2
FY05	2	2	2
FY06	3	3	3
FY07	2	2	3
FY08	3	5	<b>4</b>
FY09			4
FY10			5
FY11			5
FY12			<b>6</b>
FY13			6
FY14			7



Current Month: Jun 08

This Q	Actual	FY08
Planned	This Q/Total	Target
3	3/5	5





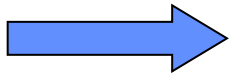
# **OUTLINE**

## **Solar & Terrestrial Physics Division**



**STP Program Overview**

**Milestones & Performance Measures**



**Upcoming Events**

**Accomplishments**

**Special Interest Items**

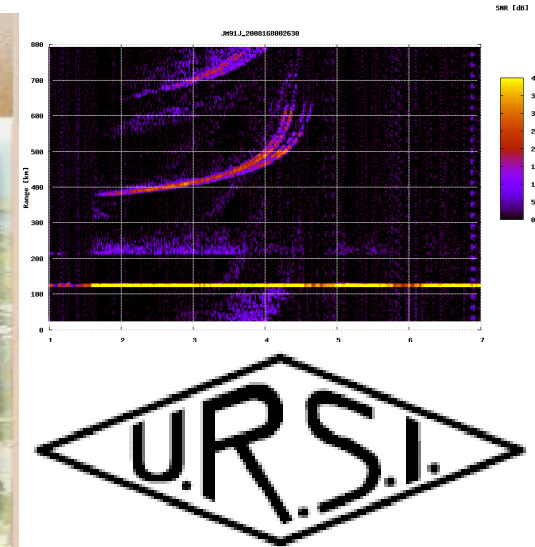
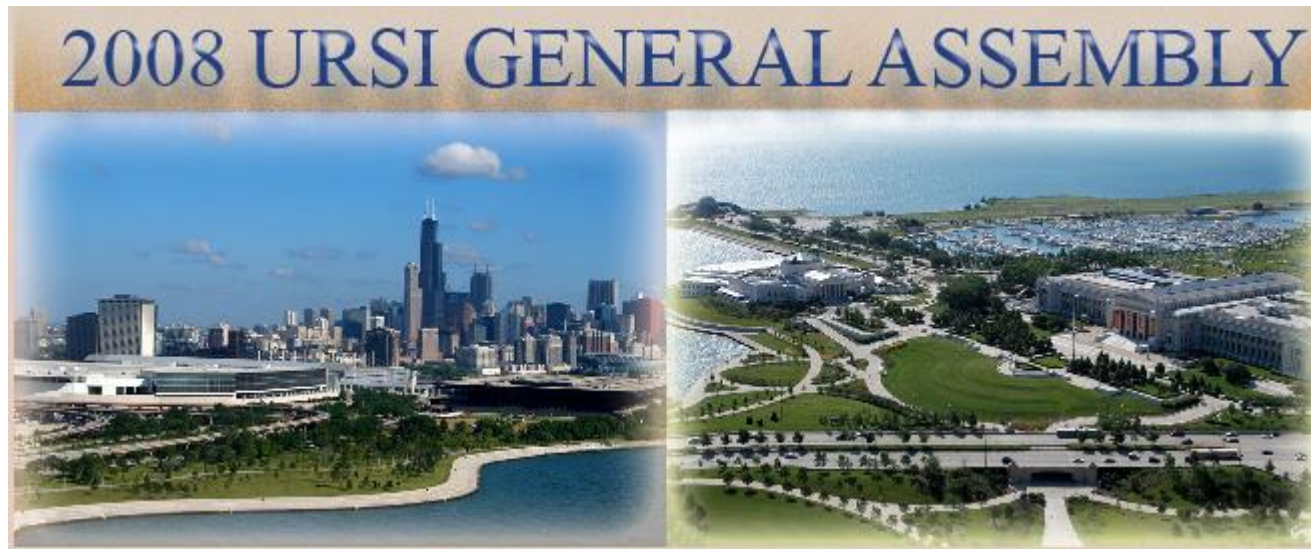
**Solar Data Services Website**

**Issues & Summary**



# Upcoming Events

URSI Meeting – 07-16 Aug 08 – Chicago, IL



The XXIX General Assembly of the International Union of Radio Science (Union Radio Scientifique Internationale-URSI) will be held at the Hyatt Regency Chicago Hotel in downtown Chicago, Illinois, USA on August 07-16, 2008. The General Assemblies of URSI are held at intervals of three years to review current research trends, present new discoveries and make plans for future research and special projects in all areas of radio science, especially where international cooperation is desirable. Rob Redmon and Terry Bullett will be participating in the 2008 URSI General Assembly and will be presenting a poster on the new generation ionosondes currently deployed at Wallops Island, VA and Jicamarca, Peru.



**The 37<sup>th</sup> Scientific Assembly of the Committee on Space Research (COSPAR)** is being held in Montreal, Canada during the week of July 13-20. This year commemorates the 50<sup>th</sup> anniversary of COSPAR. In conjunction with this meeting, the International Space Environmental Services (ISES) group will hold its annual organizational meeting. Helen Coffey will be attending both the COSPAR & ISES. She will present a paper on the International Geophysical Calendar (IGC) at COSPAR. Helen has prepared the annual IGC since 1980.



# International Geophysical Calendar 2008 (Final)

(See other side for information on use of this Calendar)

**JANUARY** S M T W T F S JULY  
 6 7 8<sup>+</sup> 9<sup>+</sup> 10<sup>+</sup> 11<sup>+</sup> 12<sup>+</sup>  
 13 14 15 16 17 18<sup>+</sup> 19<sup>+</sup>  
 20 21 22 23 24 25 26  
 27 28 29 30 31 1 2  
**FEBRUARY** 3 4 5 6 7 8 9  
 10 11 12<sup>+</sup> 13<sup>+</sup> 14<sup>+</sup> 15<sup>+</sup> 16<sup>+</sup>  
 17 18 19 20 21<sup>+</sup> 22 23  
 24 25 26 27 28 29 1  
**MARCH** 2 3 4 5 6 7<sup>N</sup> 8  
 9 10 11 12 13 14 15  
 16 17 18 19 20 21<sup>+</sup> 22  
 23 24 25 26 27 28 29  
 30 31 1 2 3 4 5  
**APRIL** 6<sup>N</sup> 7 8 9 10<sup>+</sup> 11 12  
 13 14 15<sup>+</sup> 16<sup>+</sup> 17 18 19  
 20<sup>+</sup> 21 22 23 24 25 26  
 27 28 29 30 1 2 3  
**MAY** 4 5<sup>N</sup> 6 7 8 9 10  
 11 12 13<sup>+</sup> 14<sup>+</sup> 15 16 17  
 18 19 20<sup>+</sup> 21 22 23 24  
 25 26 27 28 29 30 31  
**JUNE** 1 2 3<sup>N</sup> 4<sup>+</sup> 5<sup>+</sup> 6 7  
 8 9 10 11 12 13 14  
 15 16 17 18 19 20 21  
 22 23 24 25 26 27 28  
 29 30  
 S M T W T F S

**JULY**  
 6 7 8<sup>+</sup> 9<sup>+</sup> 10<sup>+</sup> 11<sup>+</sup> 12<sup>+</sup>  
 13 14 15 16 17 18<sup>+</sup> 19  
 20 21 22 23 24 25 26  
 27 28 29 30 31 1 2  
**AUGUST** 3 4 5<sup>+</sup> 6<sup>+</sup> 7 8 9  
 10 11 12 13 14 15 16<sup>+</sup>  
 17 18 19 20 21 22 23  
 24 25 26 27 28 29 30<sup>N</sup>  
**SEPTEMBER** 1 2 3 4 5 6  
 7 8 9 10 11 12 13  
 14 15<sup>+</sup> 16 17 18 19 20  
 21 22 23 24 25 26 27  
 28 29 30 1<sup>+</sup> 2<sup>+</sup> 3 4  
**OCTOBER** 5 6 7 8 9 10 11  
 12 13 14<sup>+</sup> 15<sup>+</sup> 16 17 18  
 19 20 21 22<sup>+</sup> 23<sup>+</sup> 24 25  
 26 27 28<sup>N</sup> 29<sup>+</sup> 30<sup>+</sup> 31 1  
**NOVEMBER** 2 3 4 5 6 7 8  
 9 10 11 12 13<sup>+</sup> 14 15  
 16 17 18 19<sup>+</sup> 20<sup>+</sup> 21 22  
 23 24 25 26 27<sup>N</sup> 28<sup>+</sup> 29<sup>+</sup>  
**DECEMBER** 30<sup>+</sup> 1 2 3 4 5 6  
 7 8 9 10 11 12<sup>+</sup> 13  
 14 15 16 17 18 19 20  
 21 22 23 24 25 26 27<sup>N</sup>  
 28 29 30 31 1 2 3  
 4 5 6 7 8 9 10  
 11<sup>+</sup> 12 13 14 15 16 17  
 18 19 20 21<sup>+</sup> 22<sup>+</sup> 23 24  
 25 26<sup>N</sup> 27 28 29 30 31  
 S M T W T F S

2009  
**JANUARY**  
 11<sup>+</sup> 12 13 14 15 16 17  
 18 19 20 21<sup>+</sup> 22<sup>+</sup> 23 24  
 25 26<sup>N</sup> 27 28 29 30 31  
 S M T W T F S

N NEW MOON F FULL MOON  
 7 Day of Solar Eclipse: Feb 7(annual) and Aug 1 (total)  
 9 10 Airglow and Aurora Period  
 8<sup>+</sup> Dark Moon Geophysical Day (DMGD)

(5) Regular World Day (RWD)  
 (16) Priority Regular World Day (PRWD)  
 (17) Quarterly World Day (QWD)  
 also a PRWD and RWD  
 (2) Regular Geophysical Day (RGD)  
 (10 11) World Geophysical Interval (WGI)

+ Incoherent Scatter Coordinated Observation Day



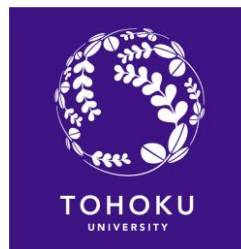


# Upcoming Events

## IFS – 26-27 July 08 – Sendai, Japan



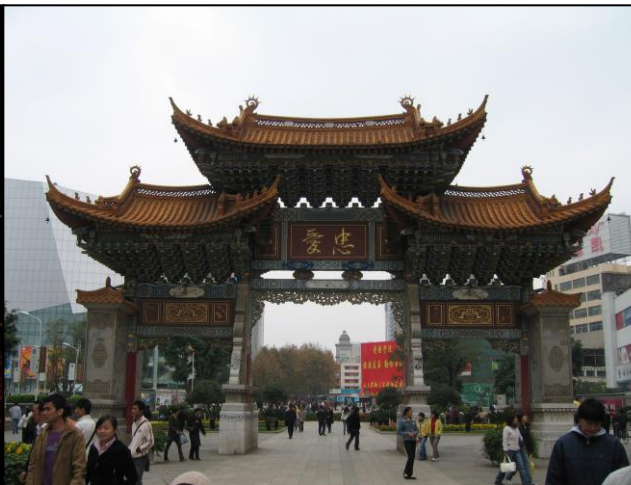
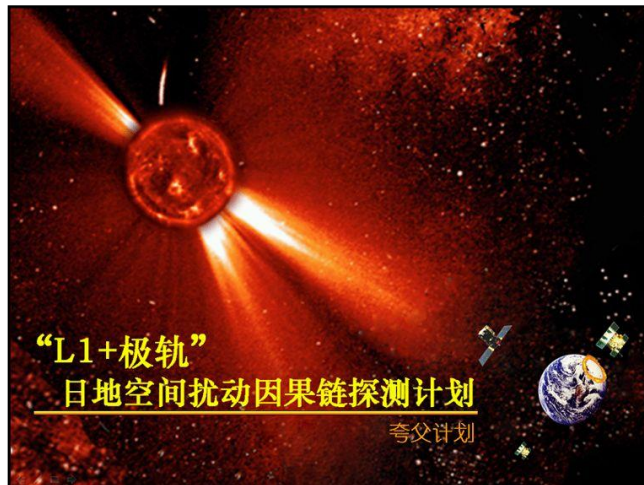
Dr Chris Elvidge will give a keynote presentation at the 6<sup>th</sup> International Symposium on Integrated Field Science at Tohoku University, Senai (Japan), 26-27 July 2008. The intent of the symposium is to examine individual and integrated eco-systems (forests, oceans, grasslands, etc) using remote sensing techniques. Dr Elvidge will also lead a section on DMSP applications





# Upcoming Events

ISKP – 14-19 Sep 08 – Kunming, China



The Third International Symposium on KuaFu Project (ISKP-III) will be held at Kunming, Yunnan, September 14-19, 2008. KuaFu is a Chinese space program with a goal to establish a space weather forecast system composed of three satellites to be launched after 2012. KuaFu-A will be located around the L1 point. The two KuaFu-B satellites will be in identical elliptical polar Earth orbits relatively phased so that when one is at perigee the other is at apogee. Bill Denig has been asked by the NPOESS program office to attend this meeting on their behalf and report back on areas of interest.



# Upcoming Events

## ION – 16-19 Sep 08 – Savannah, GA



**ION GNSS 2008**

Savannah, Georgia • September 16-19, 2008  
Savannah Convention Center

**New This Year —**  
Panel discussions on policy issues, GNSS program updates and business applications featuring leading industry decision makers.

Tutorials: September 15-16  
FOUO Sessions: September 16  
Co-sponsored by JSDE and AFRL

   
**www.ion.org**

The 21st International Technical Meeting of the Satellite Division of The Institute of Navigation

A CORS User Forum will be held in conjunction with the Institute of Navigation's 21st International Technical Meeting of the satellite Division to be held in Savannah, GA, 16-19 September 2008. Andrea Bilich and Fran Coloma will participate in various aspects of the ION GNSS 2008 meeting and the CORS User Forum.







# **OUTLINE**

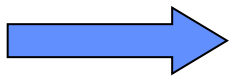
## **Solar & Terrestrial Physics Division**



**STP Program Overview**

**Milestones & Performance Measures**

**Upcoming Events**



**Accomplishments**

**Special Interest Items**

**Solar Data Services Website**

**Issues & Summary**



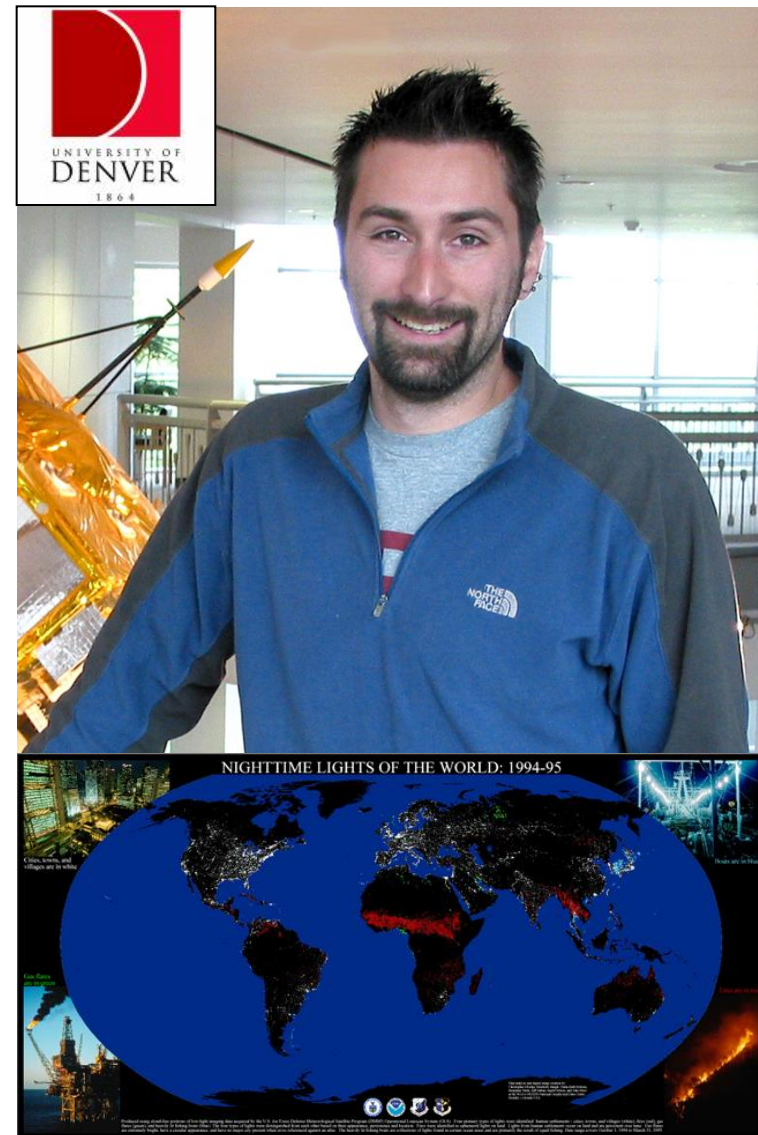
# Accomplishments

## Ben Tuttle Awarded Fellowship



Mr Ben Tuttle was recently awarded a NASA Earth & Space Science Fellowship to continue his PhD studies in Geography at the University of Denver. Mr Tuttle is a member of the Earth Observation Group at NGDC within the Nighttime Lights program. Ben's thesis work will leverage his NGDC experiences to develop calibration techniques and light sources for validating the performance of space sensors such as the NPOESS Visible / Infrared Imager / Radiometer Suite (VIIRS). While pursuing his PhD, Mr Tuttle will continue his association with NGDC as a CIRES affiliate.

**Significance** – The earning of this prestigious award by Mr Tuttle is a recognition of the high quality of CIRES professional research affiliates (PRAs).





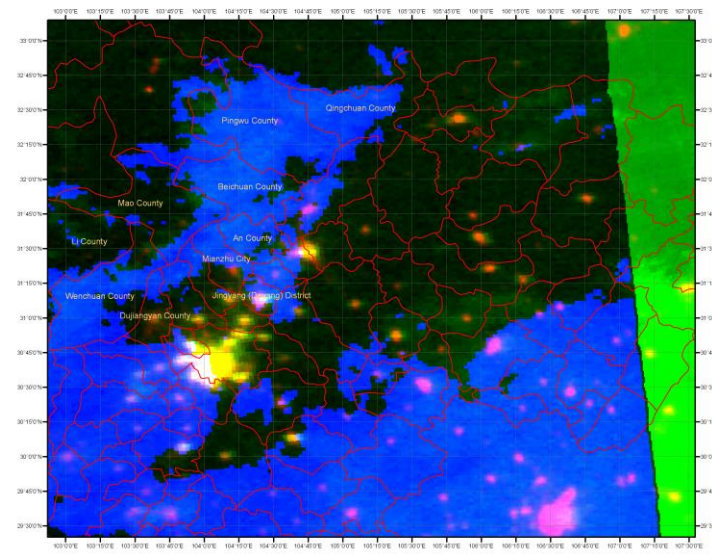
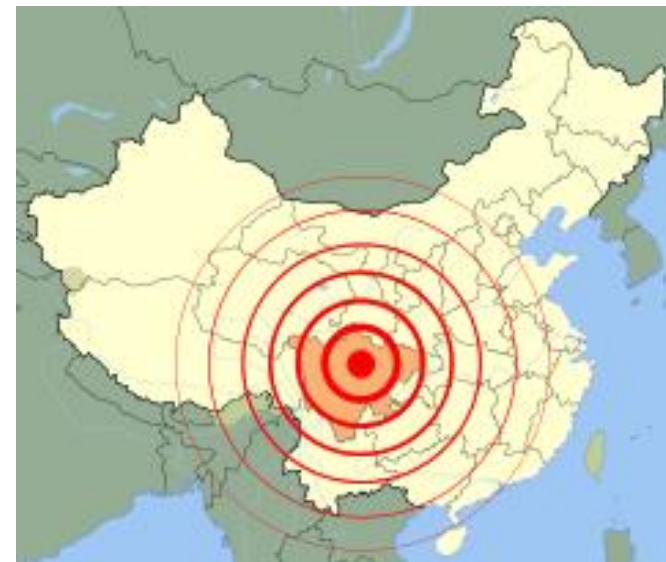
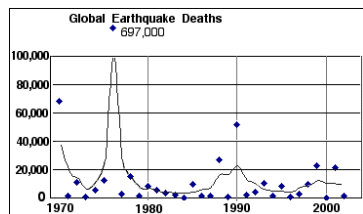
# Accomplishments

## Sichuan Earthquake – 12-May-2008



**Background** – In response to a request from the U.S. Department of State the NGDC Earth Observation Group (EOG) created a composite image of nighttime lights for the period following the devastating 12-May earthquake in Sichuan province, China. Imagery shows (red dots) that many of the population centers in the region suffered power loss as a result of the earthquake. DOS Deputy Secretary John Negroponte is expected to send a thank you note to Vice Admiral Lautenbacher for the support provided by NOAA and, specifically, the NGDC's Earth Observation Group.

**Significance** – NOAA supports humanitarian relief efforts worldwide.

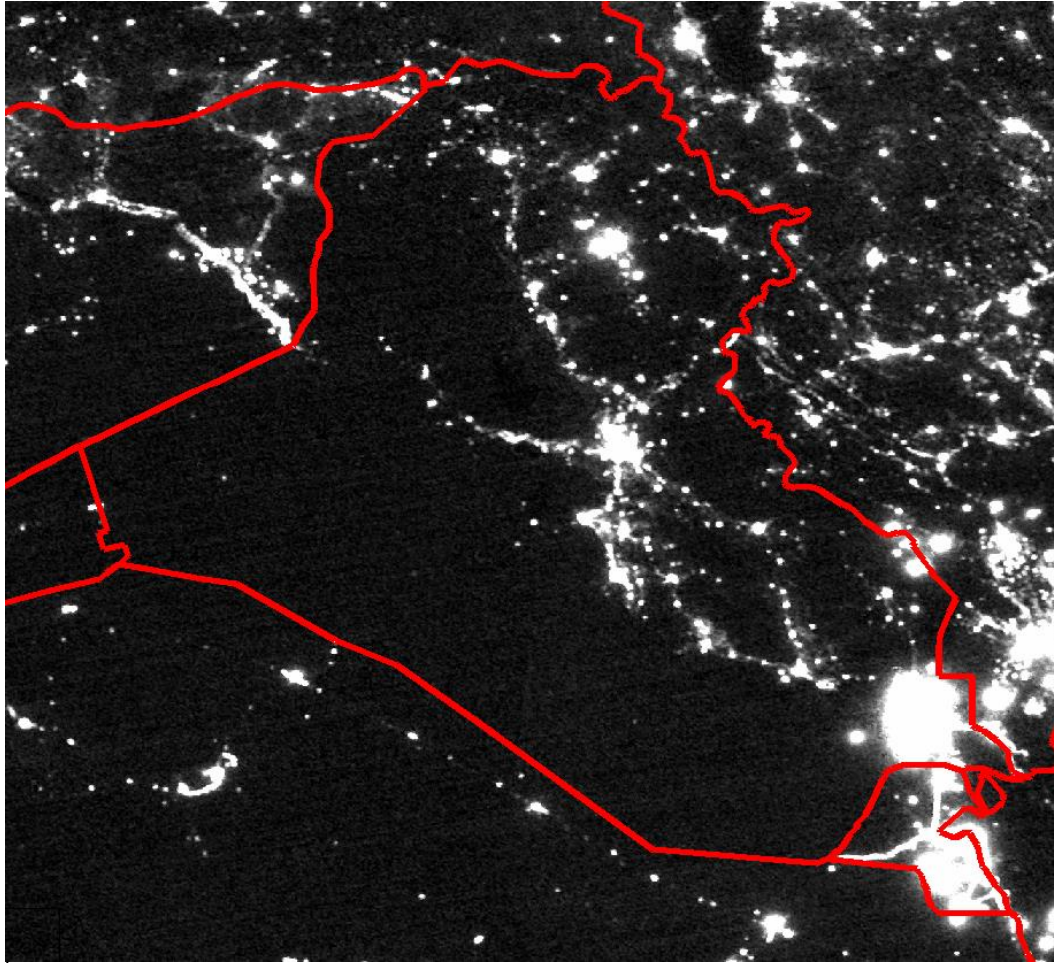






# Accomplishments

## War in Iraq – Ongoing



**Nighttime Lights Imagery over Iraq**

***Background*** - The National Geospatial - Intelligence Agency (NGA) GEOINT Support Team 32, currently deployed to Iraq, requested DMSP nighttime lights imagery for the country. The DMSP imagery will be used for planning purposes by the Strategic Transition Team.







# Accomplishments

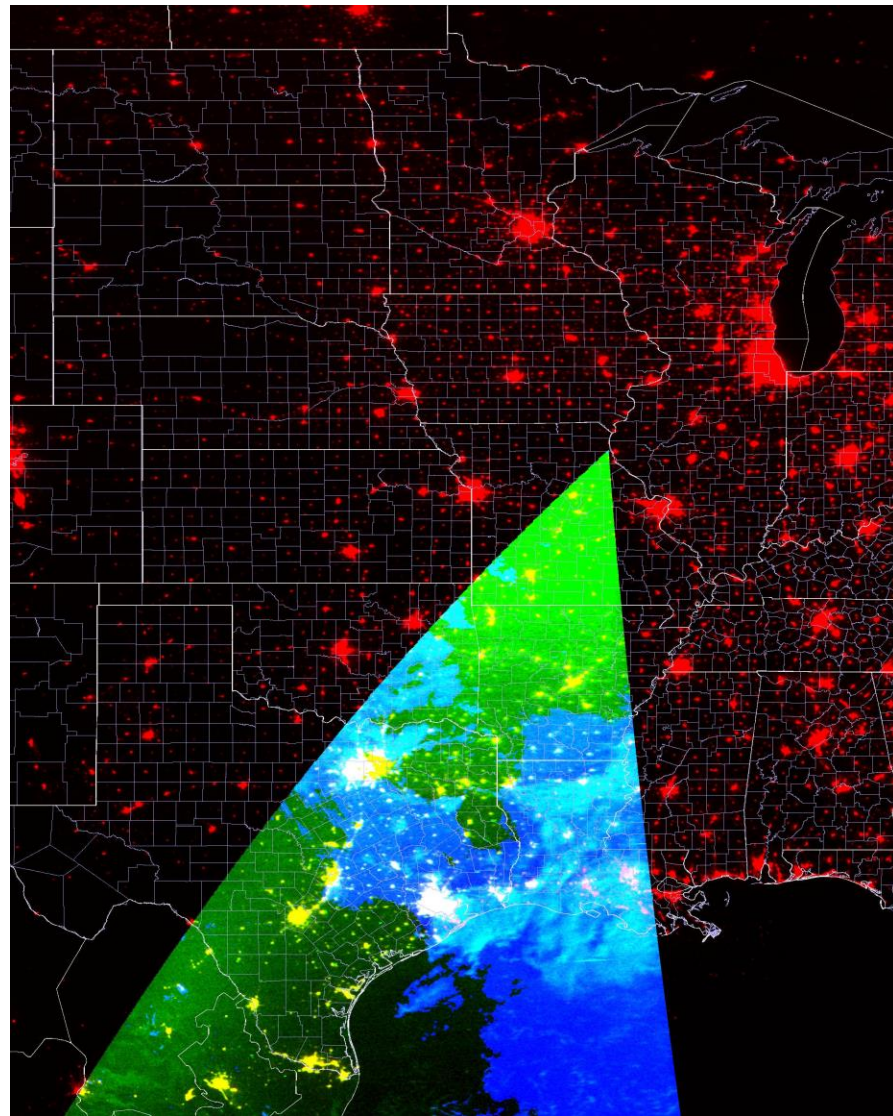
## Midwest Flooding – 07-23 June 2008



The EOG provided DMSP nighttime lights imagery of the upper Mississippi region to the DHS/FEMA. Although lighting conditions are not optimal the EOG will continue to provide daily imagery to FEMA .



Cedar River flooding near Vinton, IA  
on June 11<sup>th</sup> (AP Photo/Steve Pope)



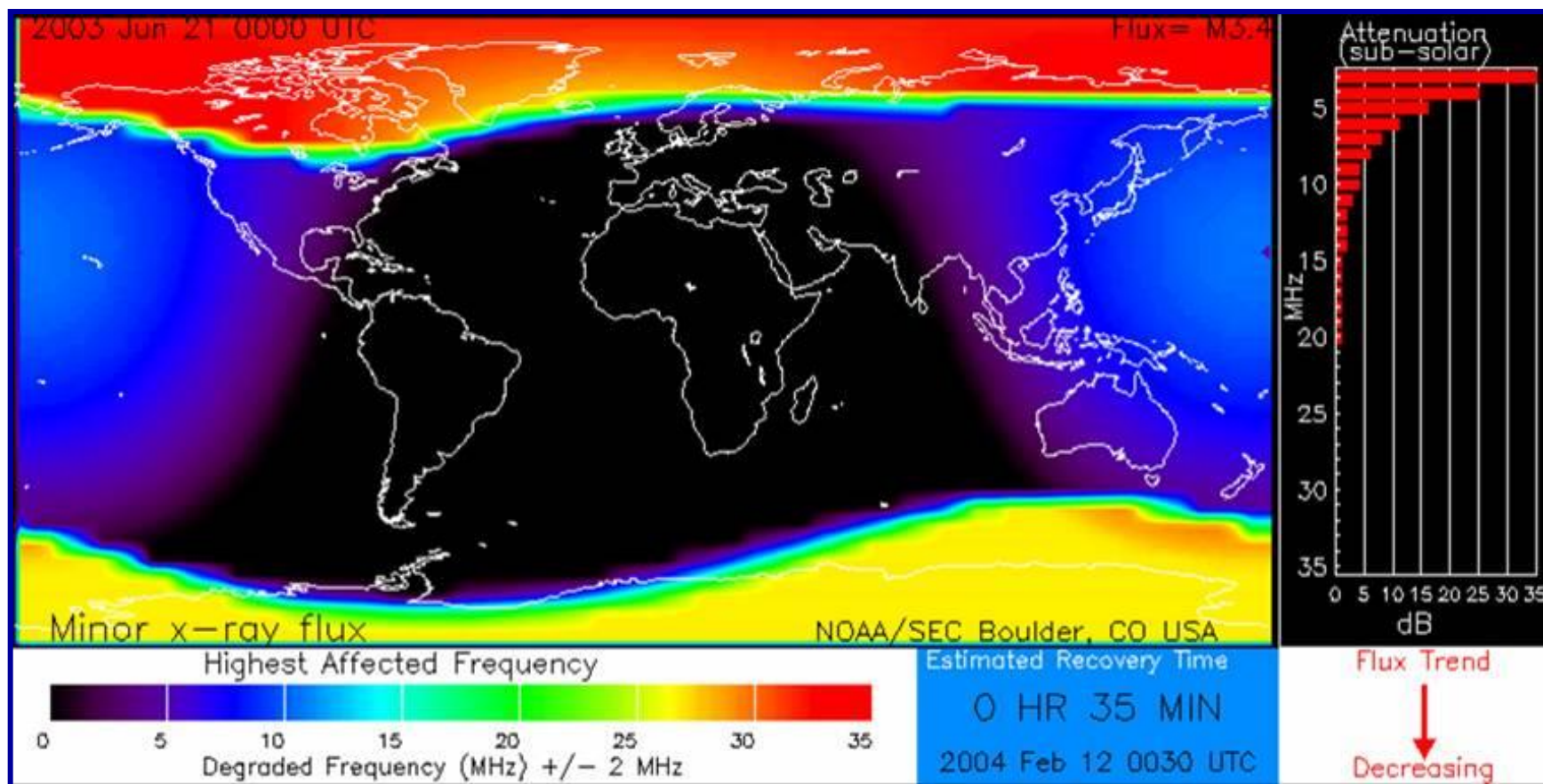


# Accomplishments



## Operational D-region Absorption Product

SWPC is transitioning to operations a D-region absorption product developed by Herb Sauer and Dan Wilkinson. The global model takes into consideration the effects of solar illumination, geometric cutoff variations and frequency dependence.





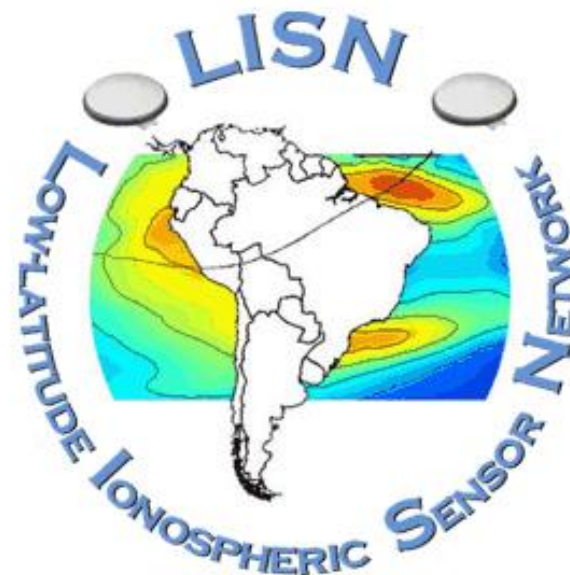
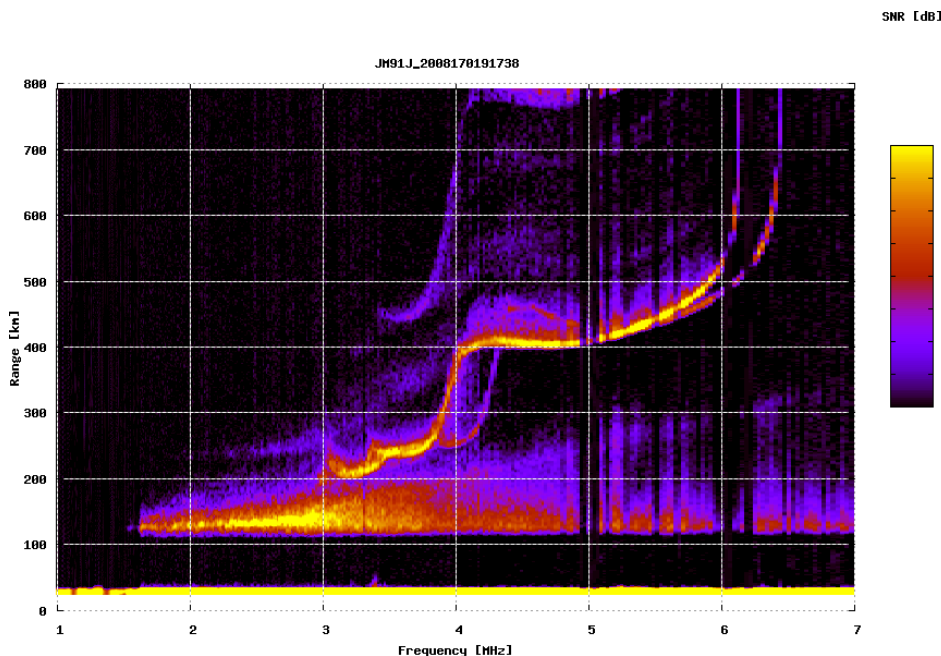


# Accomplishments

## VIPER Installation at Jicamarca

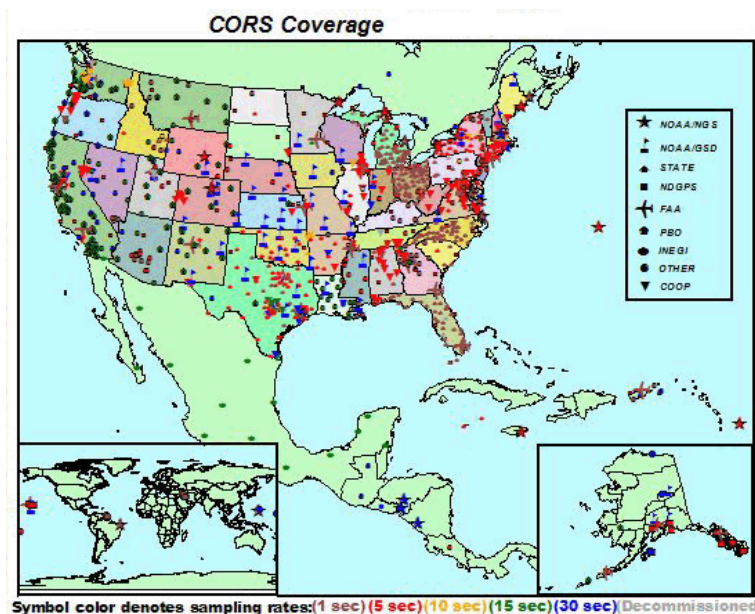


**Background** – A Vertical Incidence Pulsed Ionospheric Radar (VIPER), aka Dynasonde, was installed at the Jicamarca Radio Observatory, Peru by NGDC Associate, Terry Bullett. This VIPER will be included as an element of the Low-latitude Ionospheric Sensor Network (LISN). First Light for the Peru VIPER was attained on Jun 16<sup>th</sup>. In addition to the VIPER systems currently installed at Wallops Island and Jicamarca, this new generation radar system is tentatively planned for Boulder, Puerto Rico, Egypt, Ethiopia and Poker Flat, AK.



# Accomplishments

## CORS-West Picks Up the Slack



Following scheduled maintenance of the CORS-East network, the Silver Spring node encountered a problem with their online server (araid). This problem, which occurred on June 12<sup>th</sup>, affected CORS-East data collection, OPUS and other CORS processes causing the system to rely on Boulder to ingest the complete datasets. It is anticipated that repairs to the CORS-East node will take several weeks. In the meantime, users are being redirected to pull full datasets from CORS-West. As expected, USTEC and GPS-met are still receiving near-real-time data from CORS-West.



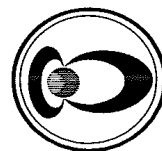


# Accomplishments

## INTERMAGNET Data Agreement



Don Herzog recently mediated an agreement between the WDC-STP (Boulder) and INTERMAGNET for acquiring definitive geomagnetic observatory data from their global distribution of data suppliers. This now clears the way for the WDC-STP to provide definitive magnetic data to users through the SPIDR access node.



INTERMAGNET

[www.intermagnet.org](http://www.intermagnet.org)

*Executive Council:*

Dr D J Kerridge	UK
Dr A Chulliat	France
Dr J J Love	USA
Dr D H Boteler	Canada

15<sup>th</sup> June 2008

Mr Donald Herzog  
NGDC/CIRES  
NOAA E/GC1  
325 Broadway  
Boulder CO 80305-3328  
USA

Dear Don

**Access to observatory definitive data**

I confirm that the World Data Centre (WDC), Boulder may access the definitive data (for those observatories that have agreed that INTERMAGNET may supply data to the WDC) via the INTERMAGNET web server maintained by the Geological Survey of Canada.

Yours sincerely

**David Kerridge**  
Chairman, INTERMAGNET Executive Council

British Geological Survey  
Murchison House  
West Mains Road  
Edinburgh  
EH9 3LA

tel: +44 (0) 131 650 0220  
fax: +44 (0) 131 667 1877  
email: [djk@bgs.ac.uk](mailto:djk@bgs.ac.uk)



# **OUTLINE**

## **Solar & Terrestrial Physics Division**

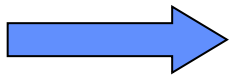


**STP Program Overview**

**Milestones & Performance Measures**

**Upcoming Events**

**Accomplishments**



**Special Interest Items**

**Solar Data Services Website**

**Issues & Summary**



# Special Interest Items

## C/NOFS Satellite Launch



**Background** – The Communications / Navigation Outage Forecast System (C/NOFS) satellite was successfully launched on a Pegasus rocket at 10:02 PDT on 16 Apr 08. The military mission of C/NOFS is to predict the formation of ionospheric scintillation features at low latitudes. NGDC scientists, Stefan Maus and Patrick Alken are part of the research team responsible for developing a theoretical understanding of the electrodynamic precursors that lead to scintillation. C/NOFS is an Advanced Concept Technology Demonstration project led by the Air Force Research Laboratory.

**Significance** – The NWS Space Weather Prediction Center is investigating the operational utility of C/NOFS data for improving GPS navigation.





# Special Interest Items

## Reductions Noted in Global Gas Flaring



**Background** – Chris Elvidge recently addressed the World Bank Global Gas Flaring Reduction (GGFR) steering committee meeting in Houston, Texas. Dr. Elvidge presented 2007 Defense Meteorological Satellite Program (DMSP) results that show a decline in national and global gas flaring volumes. Estimates released in 2006 from DMSP nighttime lights data showed global gas flaring volume at 174 billion cubic meters (BCM). The 2007 DMSP data show a drop in volume to 155 BCM.

**Significance** – Gas flaring is a source of the greenhouse gas carbon monoxide as well as a waste of a natural resource. The DMSP results provide an indication that GGFR efforts by the World Bank are showing positive results.





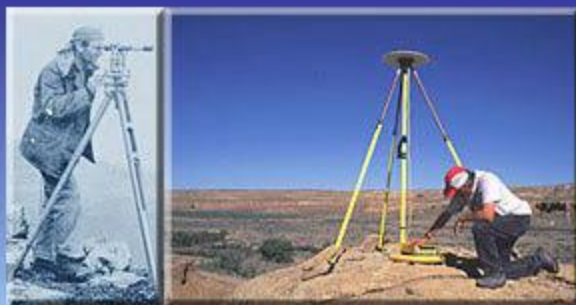
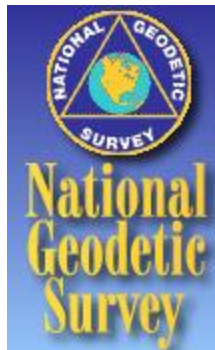
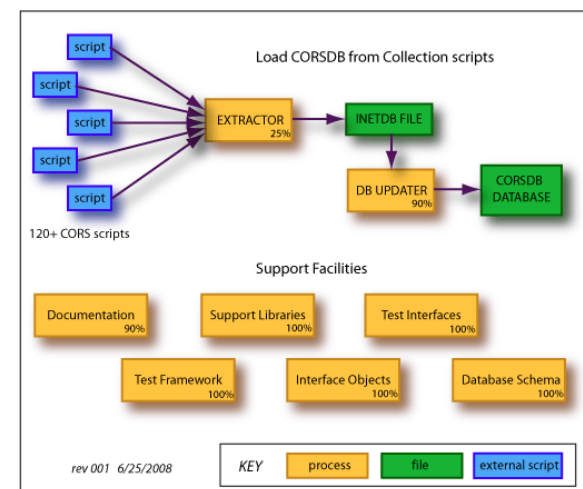
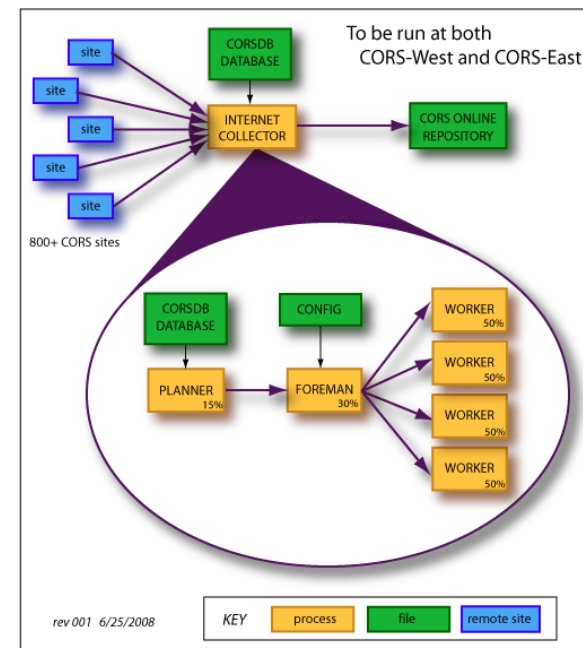


# Special Interest Items

## CORS Internet Collector



Rob Prentice is continuing the Internet Collector (IC) development for the Continuously Operating Reference Station (CORS) data collection. The upper figure on the right provides a functional overview of the IC illustrating how the system acquires data in accordance with the CORS collection database and then assigns tasks to the available processors. The percentage in each box provides a rough estimate of the maturity of the development. The lower figure illustrates the more mature supporting activities that are required to execute the IC within CORS East & West.



NGS, Positioning America for the Future

U.S. Department of Commerce

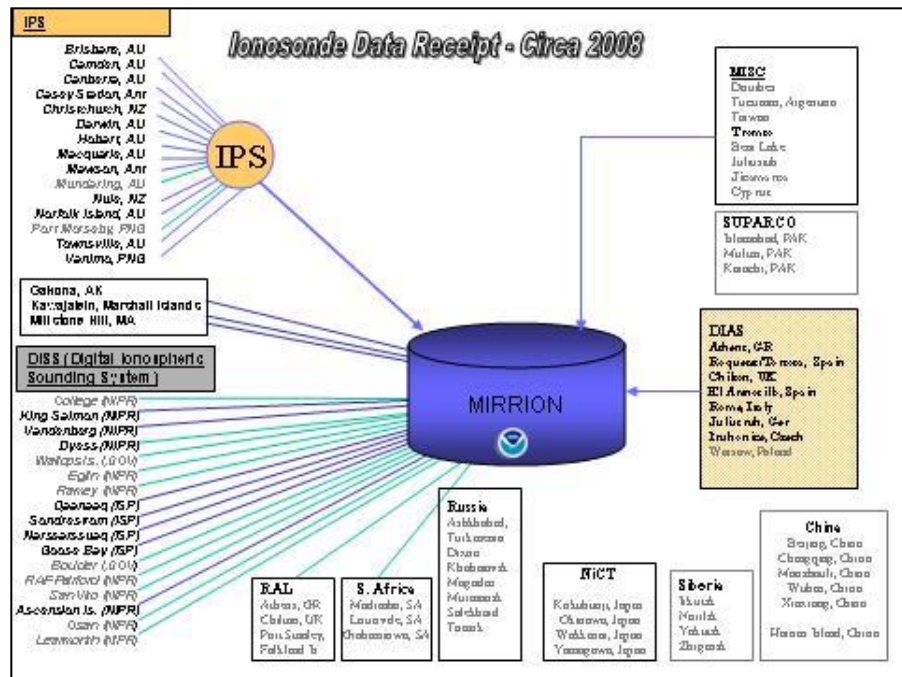
National Oceanic and Atmospheric Administration

National Ocean Service



# Special Interest Items

## Mirrion Status – **STAGNANT**



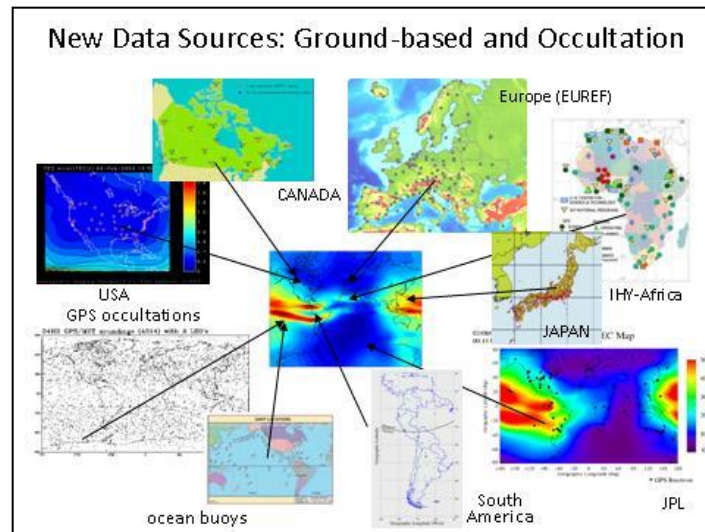
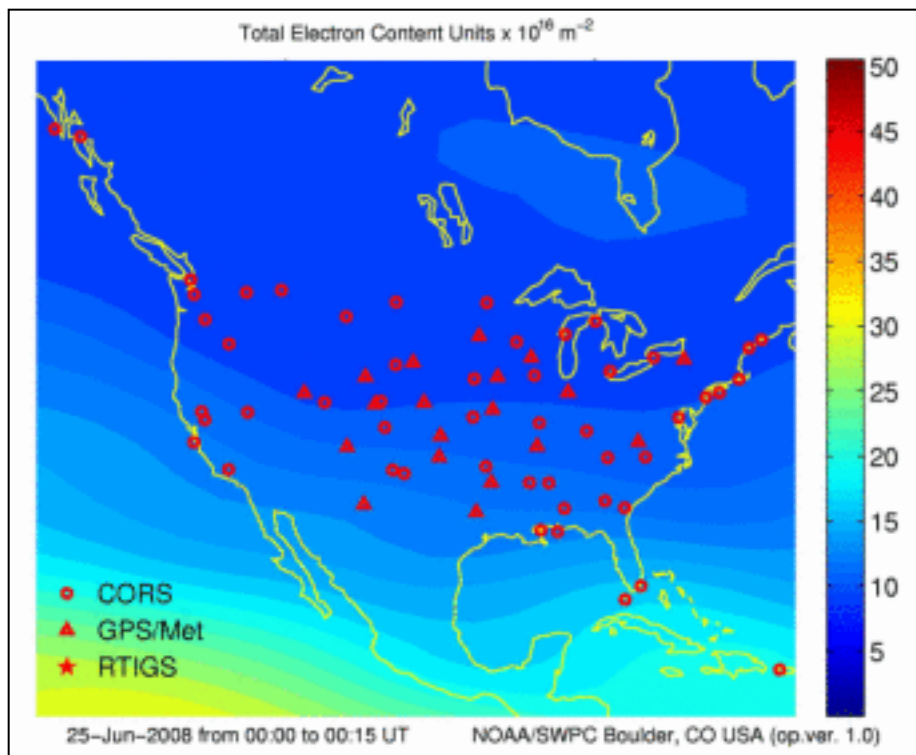
The Mirrion ionosonde collection and QC node was developed and initially supported at NGDC using AF funds. Mirrion is the principal access and distribution system for disseminating real-time ionosonde data to AFWA & SWPC. Mirrion is also the primary method to acquire data for the NGDC archives. No AF funding has been received since FY06 and the system has remained stagnant with no upgrades planned.

**Issue** – SWPC has made changes to their ingest systems and are now more dependent on Mirrion as a source of ionosonde data. SWPC (Ltr R. Zwickl to C. Fox, 13Mar06) has expressed their desire for ionosonde data although specifically in connection with an improved AF network as a data source for GAIM. The future of the ionospheric support to SWPC is a topic of discussion for the upcoming SWPC-NGDC summit.

# Special Interest Items

## SWPC Future Data Needs for “US-TEC”

SWPC wishes to expand US-TEC to a global model by including new data from a variety of GPS regional networks & an operational COSMIC-2. Requesting NGDC to acquire these data is under consideration (SWPC-NGDC Summit).



Estimated volume and time-line for new data sets

	Data	Data Volume (GPS ground receivers)	Target	Possible Operational Model
1	WAAS (including Mexico, Alaska, Canada)	30 – 40	2008-09	Improved US-TEC
2	RTIGS (expanding in Canada)	20 – 30	2008-09	Improved US-TEC
3	LISN (South America)	50 – 100	2009-10	SA-TEC
4	EUREF/Expanded RTIGS	100 – 150	2010-11	EU-TEC
5	African data	100 – 200	2011-12	AF-TEC
6	Asian data	100 – 200	2011-12	AS-TEC
7	COSMIC II	~ 300 (ground-based equivalent)	2012-13	For all models
8	Buoys data	?	?	?
	All data sets	~ 1000 (all regional data)	2012-13	Global Capabilities



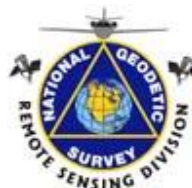


# Special Interest Items

## NGS Aerial Photography



The upcoming visit by the Dave Zilkowski may provide an opportunity for NGDC & NDS to discuss the possibility of having NGDC be the permanent archive of the NGS aerial photographs. These data are the primary source materials used for creating coastal survey maps and digital cartographic feature files. The original NGS imagery are currently in either film or digital formats. The intent is to convert the film imagery to digital format via CDMP. The ball is currently in NGS' court. Doug Graham is the NGS POC. Dan Kowal and Chris Elvidge are the NGDC POCs.



## The Coast of Maine





# Special Interest Items

## SWPC – NGDC Summit



This past year the Space Weather Prediction Center (SWPC) underwent significant change as the organization tries to refocuses itself as a National Center for Environmental Prediction (NCEP). WFD and Diane Seuss are planning for a late summer senior-level summit. Topics of interest include:

- SWPC reorganization and how it affects SWPC-NGDC interactions
- Better definition of organizational roles in archive and access to data
- Easy access to archived datasets for V&V and forecaster training
- Real-time data stream; ionosondes, IGS, magnetometers . . .
- Joint social activities between our groups from time to time
- SWPC's C&A crisis



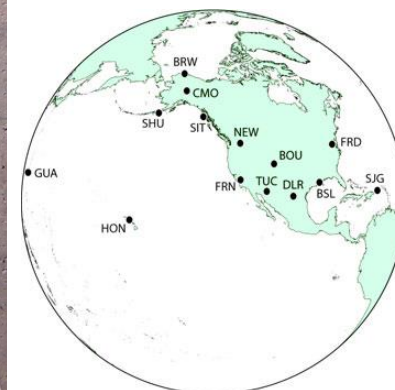


# Special Interest Items

## IAGA Representatives Visit the DSRC



NGDC hosted 50 representatives from the International Association of Geomagnetism and Aeronomy (IAGA) for a tour of the David Skaggs Research Center on June 13<sup>th</sup>. Visit was in conjunction with an IAGA Geomagnetic Workshop in Golden organized by the U.S. Geological Survey.





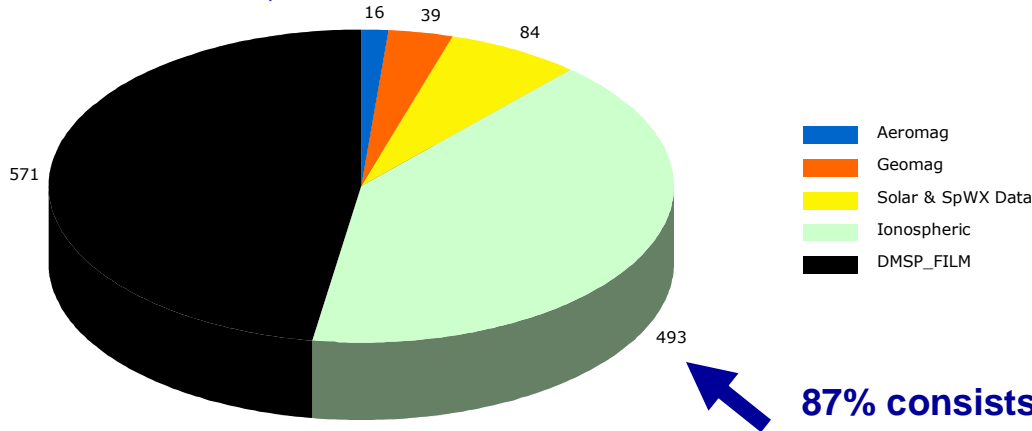


# Special Interest Items

## Tivoli Mound – Status



Remaining STP Data in the Tivoli Mound (GB)  
1,204 GB total.



- Aeromag
- Geomag
- Solar & SpWX Data
- Ionospheric
- DMSP\_FILM



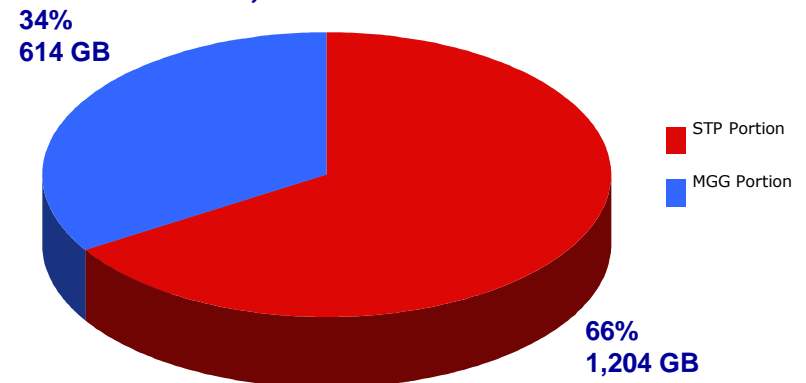
Advanced Digital  
Information Corporation

87% consists of Ionosonde station data that has been retrieved and processed by Ray Konkright. Last step is to verify that all data records have migrated into the ADIC archive.

Tivoli Mound Migration Work FY08 to Date:

Data Set	Size (GB)	# of Files
Solar Radio (RSTN/Spectral)	291	64,363
Aeromag	33	10,614

Divisional Breakdown in Tivoli Mound  
1,817 GB Total



Slide courtesy of Dan Kowal

STP PMR – 01 Jul 2008



# **OUTLINE**

## **Solar & Terrestrial Physics Division**



**STP Program Overview**

**Milestones & Performance Measures**

**Upcoming Events**

**Accomplishments**

**Special Interest Items**



**Featured Demo**

**Issues & Summary**





# Featured Demo

## STP Solar Data Website



NGDC/STP - Solar-Terrestrial Physics and World Data Center for Solar-Terrestrial Physics, Boulder - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://wwwdevel.ngdc.noaa.gov/stp/stp.html

Toyota Parts Cheap... Getting Started Latest Headlines

National Geophysical Data Center (NGDC)  
NOAA Satellite and Information Service

Search NGDC Search NOAA  
Go

NOAA > NESDIS > NGDC > stp

NGDC STP MGG ISD EDS

comments | privacy policy

**Geomagnetism**  
**Nighttime Earth Observations**  
**Space Weather**

**Solar and Terrestrial Physics Division**

Space Weather

Geomagnetism

Nighttime Earth Observations

World Data Center for Solar-Terrestrial Physics

STP Staff

**Mailing Address:**  
National Geophysical Data Center  
Boulder, CO 80507-0001

Done

**NGDC Solar and Terrestrial Physics Division**

The Solar & Terrestrial Physics (STP) Division of NGDC provides scientific stewardship of NOAA's space weather data and products, geomagnetic observatory and station data, and nighttime observations of the Earth.

- Space Weather:**  
The STP Division is responsible for the archive and access of solar and space environmental data and derived products collected by NOAA observing systems and acquired through the World Data Center for Solar-Terrestrial Physics (Boulder). Archives include extensive collections of data from solar observatories, ground ionospheric sounders, and satellites plus modeled space climatologies.
- Geomagnetism:**  
STP acquires geomagnetic data and derived products and indices from numerous worldwide observatories and stations which are included in the World Data Center for Solar Terrestrial Physics (Boulder). The NGDC collection of geomagnetic data also includes aeromagnetic and marine geomagnetic data which are the responsibility of the NGDC Marine Geology and Geophysics Division.
- Nighttime Earth Observations:**  
The STP Division is the steward of nighttime earth imagery data from Defense Meteorological Satellite Program (DMSP) satellites. Archives include digital datasets from 1994 to present and an extensive collection of prior film data that is currently being converted to digital format. Processed raw imagery datasets are available plus higher-level derived products and posters concerned with anthropogenic lighting and inferred socio-economic indicators.

start Denig, Willia... Inbox - Thun... webpage tho... Presentation1 STP PMR - 3... NGDC/STP - ... 3:26 PM

<http://wwwdevel.ngdc.noaa.gov/stp/stp.html>



# **OUTLINE**

## **Solar & Terrestrial Physics Division**



**STP Program Overview**

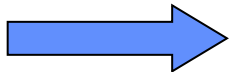
**Milestones & Performance Measures**

**Upcoming Events**

**Accomplishments**

**Special Interest Items**

**Featured Demo**



**Issues & Summary**



# Issues & Summary

## List of Issues from Prior Reviews



- **Refocus of NWS/SWPC Objectives - active**
- **NightSat Mission Concept (1QFY08) – active**
- **NGS Aerial Photography (1QFY08) – active**
- **DMSP Data in CLASS (1QFY08) – active**
- ✓ *Federal Enterprise Ionosonde Network (4QFY07) – NLAI*
- ✓ *Station-Level Metadata (4QFY07) – NLAI*
- ✓ *Boulder-StarLight-Moscow (3QFY07) – NLAI*
- ✓ *Manpower Investments in CLASS TET (3QFY07) – NLAI*
- ✓ *CIRES New Hires for EOG (2QFY07) – NLAI*
- **Migrate the DMSP OLS Archive to CLASS (2QFY07) – active**
- ✓ *Relocate National Park Service Nightsky Team (2QFY07) – NLAI*
- ✓ *Need for 20+ Tb of Spinning Disk (1QFY07) – NLAI*
- **ADIC-API Needed (1QFY07) – active**
- ✓ *Upcoming Retirement – Helen Coffey (1QFY07) – NLAI*

*NLAI = No Longer An Issue*





# Issues & Summary

## Solar & Terrestrial Physics Division



- All 3QFY08 milestones met & performance measures achieved
- D-region absorption product undergoing operational transition at SWPC
- NGS visit to NGDC – opportunity to discuss aerial photography
- Upcoming SWPC-NGDC summit – defining roles and responsibilities

### Metrics (3QFY08/YTD)

Papers published: 3/15

Papers presented: 15/36

Invited: 4/7

Posters: 4/13



# QUESTIONS?